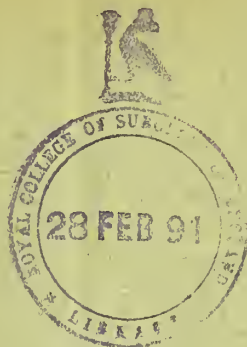


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*Reprinted from THE PRACTITIONER.]*

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THE ETIOLOGY OF LEPROSY: A CRITICISM  
OF SOME CURRENT VIEWS.

BY P. S. ABRAHAM, M.A., M.D., B.SC., F.R.C.S.I.,





## THE ETIOLOGY OF LEPROSY: A CRITICISM OF SOME CURRENT VIEWS.<sup>1</sup>

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LEAVING aside, for the present, the bacillus, which all pathologists agree is to be found in every leprous neoplasm, the supposed etiological factors of leprosy which have been most considered of late years are three, viz: (1) Heredity, (2) a Diet of fish, (3) Contagion.

The theory of heredity has had immense support, both lay and professional, and it is curious to observe how loath some medical authors are to set themselves free from its trammels, or to question its influence in propagating the disease, even though many of the facts which they themselves adduce seem obviously to lead to quite another conclusion.

As Mr. Jonathan Hutchinson points out<sup>2</sup> the fact of leprosy occasionally appearing in healthy immigrants, and just as severely as if such persons belonged to leper families, is enough to prove that hereditariness goes for little or nothing in its causation.

It is indeed idle to deny the liability of leprosy to attack individuals who have not the slightest hereditary taint.

In a recent paper<sup>3</sup> my friend Dr. Blanc, who has in late years seen probably more cases of leprosy in the United States than any one observer, shows that of forty-two cases treated by him twelve were natives of foreign countries (seven German, one Austrian, one English, one Irish, one French, one Italian), and

<sup>1</sup> Read before the Dermatological Section of the American Medical Association, at Newport, Rhode Island, U.S., June 26th, 1889.

<sup>2</sup> Clinical lecture on "Leprosy, its Causes, etc," *Medical Press and Circular*, 4th November, 1885.

<sup>3</sup> "Leprosy in New Orleans," *N. O. Med. and Surg. Journal*, 1888.

of the remainder, eighteen were the children of foreign-born parents (chiefly German and Irish), "from which we conclude," he says, "that if the disease is hereditary it must be derived from a variety of foreign sources; and if acquired then it seems to attack the children of immigrants as often as those of the older native families." What evidence can be stronger against heredity?

An important paper on the heredity of leprosy has lately been published by Dr. G. A. Hansen,<sup>1</sup> who made a journey to North America last year to see what had become of the Norwegians who had gone there as lepers, or had developed leprosy after their arrival in the New World, and to study this question of heredity in particular. With the help of Dr. Hoegh of Minneapolis, and Dr. Grünwold of Minnesota, he was able to find out that about 160 Norwegian lepers had been established in the States of Wisconsin, Minnesota, and Dakota. Many of them were married, and several have left a good many descendants. There are, in addition, many other Norwegian immigrants who are either descended from lepers, or have leprous relations in Norway. There is, therefore, in those districts, considerable material for the inheritance of leprosy. Of the 160 immigrants only thirteen are left, whom he himself saw; and besides these there are perhaps three or four others. All the rest are dead. Of all their descendants whom he has seen as far as the great-grand-children, not one has become a leper. This is, in short, the result of his investigations; and, as he says, there can be only one explanation, viz., that leprosy is not inherited.

*The Fish Theory.*—In reference to this old theory, Mr. Hillis wrote in 1881 that it "may now be laid aside as obsolete;" and it is, I believe, almost universally discredited by the medical men in Norway, as well as in every other part of the world where leprosy is rife. Nevertheless, one who is justly regarded as one of our highest British authorities is still, it seems, an ardent believer in the view that the disease is contracted by the eating of fish, "more especially fish which has been somewhat decomposed, or has been salted."<sup>2</sup>

<sup>1</sup> Virchow's *Archiv*, vol. cxiv., 1888.

<sup>2</sup> Mr. Jonathan Hutchinson, *l.c.*, p. 417.

Those who oppose this theory may well point out that while numbers of people in Scandinavia, in Africa, and in other countries habitually regale themselves with imperfectly cooked or decomposing fish, and do *not* get leprosy, numbers of those who *do* acquire the disease are not aware of ever having eaten anything of the kind. This negative argument is, apparently, at least as good as that largely relied on by the anti-contagionists, who infer that because many persons who come in contact or even live with lepers do not become lepers, therefore the disease cannot be contagious under any circumstances. If, indeed, it must be through *one* particular article of diet in all parts of the world that the germ of leprosy is introduced into the system, why may we not select something which every one must swallow at some time or other, such as, for instance, bad water? Filters and other precautionary measures are, at any rate, not particularly fashionable in leper countries.

[His Excellency Dr. Tholozan, physician to the Shah of Persia, has just favoured me with some important information bearing upon this question. He states that there is very little leprosy in the lowlands of Persia or on the coasts, and he knows of no cases at Teheran. There is, however, a great deal in the mountains of Kurdistan, where there are *no large rivers*. The mountain streams yield trout—which the people *do not eat*. He is sure that the inhabitants never get any kind of fish—not even dried or salted; for there is no means of transport for such articles from the coast. A favourite food of the mountaineers is mutton—often badly preserved in melted fat. On the other hand, at Teheran and other lowland places where leprosy is not rife, salted fish is a staple food.]

We really have no direct arguments against a possible dietetic origin for leprosy, *i.e.*, at least, by means of contaminated food; and the view of Dr. Liveing, promulgated in his Gulstonian Lectures so long ago as 1873,<sup>1</sup> viz. that the disease may be “propagated by the imbibition of the excretions of those affected, much in the same way as typhoid fever or cholera,” may yet come to the front and secure further support.

*The Contagion Theory.*—Although clear and distinct instances of the direct communicability of leprosy from person to person

<sup>1</sup> “Elephantiasis Græcorum, or True Leprosy,” 1873, p. 93.

are few and far between, and from the nature of the disease—its latency and uncertain prodromata—difficult to prove, it appears to me that we cannot deny its “contagiousness,” in the sense that untainted individuals may occasionally become affected with the disease after being in close relation with lepers. As far as I can see, there is no getting over Dr. Hawtrey Benson’s case;<sup>1</sup> and as that careful physician remarks, “to ignore the evidence of contagion in this case, where the circumstances are so simple, and so well authenticated, is indeed to strain scientific caution to its utmost limit, if not beyond it. . . . The proof of contagion afforded by this case possesses a force little short of that of a mathematical demonstration.” I agree with him that “one such fragment of positive evidence carries more weight than a vast accumulation of negative evidence.” In 1885, in his lecture on leprosy, Mr. Jonathan Hutchinson is reported to have said, “Of course if you are prejudiced in favour of its contagiousness you can produce instances apparently in favour of it, especially if you reject a thousand negative facts in favour of one fact which seems to support it. I submit that no one who will read a record of the facts can ever believe that contagion can take place.” There are other authorities too who, having made up their minds on the subject many years ago, are “of the same opinion still;” several however have seen reason to modify their views. Until a few years ago most of the Norwegian physicians disbelieved in the contagion of leprosy. Dr. Hansen however, the discoverer of the bacillus, boldly asserted its infective character; and I found last year that Dr. Sand, of Trondhjem, and Dr. Kaurin, of Molde, have both come round to his way of thinking. The eminent Dr. Danielssen however is still of the old opinion—for, as he told me, “in all his long experience of the disease he had never met with one single instance of the contagion.” Dr. Nickoll also has no belief in the contagion of leprosy, nor indeed in its heredity. Dr. Kaurin now considers that leprosy is not transmitted by heredity, although, like Virchow and many others he admits that there may be hereditary predisposition to contract the disease. He informed me that he has seen several

<sup>1</sup> *Dublin Journ. Med. Science*, 1877, p. 562, and letter in *Brit. Med. Journ.* 13th April, 1889.



cases, besides the one he has published, which point to direct contagion. Dr. Sand is of a similar opinion; and I learnt from him that he has known of two cases of servants—one at the Molde Asylum, and one at Bergen—having contracted the disease while in attendance on lepers. He knows too of many other instances which can be, at any rate most satisfactorily, explained by the theory of contagion.

Dr. Phillippo, of Jamaica, gave me, last year, his opinion as follows:—"It is communicable by contagion. This has always been the opinion amongst most of the laity, and, with some reservation, amongst many of the medical profession. Of late years I have known some most undoubted cases of contagion, and yet there have been many instances of relatives who have for years lived in daily intercourse of the freest kind, as parents and brothers and sisters, who have not suffered, and a small number of those who undoubtedly have. . . . I know of cases where there was no hereditary disease in which one member of a family has taken it from another. In one case the husband, a European, took it from the wife. In him it ran a rapid course, and he died before her, though she had it for years before him. I know of cases in which the disease has been taken from outsiders, and have heard of others in which it has been taken from the wet-nurse."

It is interesting to observe that Dr. Phillippo is one of those authorities mentioned by Dr. Gavin Milroy (in his Report on Leprosy in the West Indies, 1873, p. 30) as being opposed to the view that leprosy is contagious.

Dr. A. R. Saunders (M.D. Lond., F.R.C.S. Engl.), one of the leading practitioners (for fourteen years) of Kingston, Jamaica, has recently informed me that he has no doubt whatever as to the contagiousness of leprosy, and that he has under his care at the present time in Jamaica several cases which can only be explained by the theory of contagion. He ridicules the idea of a fish diet having anything to do with the disease.

Dr. Blanc, of New Orleans, states in the paper quoted his belief, after a study of these forty-two and other cases, "that leprosy may be communicated from a leprous to a non-leprous person by means of a specific virus, which acts somewhat like the specific poison of syphilis, depending upon thin or denuded surfaces for

its absorption, and which remains potent, very probably for an indefinite period of time."

The doctors in the Sandwich Islands are all (and have been, with one exception, Dr. Fitch, *Report*, Honolulu, 1886) believers in the contagion of leprosy, as are many of those at the Cape, in India, in the West Indies, and elsewhere. Dr. G. H. Fox, of New York (in his *Remarks on the Treatment of Leprosy*, New York, 1885), indeed says: "Now it is generally admitted by those who have most carefully studied the facts of the case that leprosy is a contagious disease." He further remarks that "granting that leprosy is contagious, we are forced to admit that it is so only to a very limited extent." Most people will concur in this. Some of the ablest observers are still keeping their minds open on the question. Dr. Beavan Rake writes that he has met with no case of contagion in Trinidad, but that he can bring forward many negative instances. His inoculation experiments on animals, too, have been so far unsuccessful, as were those which were formerly practised on the human subject in Norway, in Mytelene by Bargilli, and more recently in Sicily by Profeta. Even Arning's experiment on the convict at Honolulu is, in Dr. Rake's opinion, not conclusive. This man, Keanu, was inoculated on 30th September, 1884, by Dr. Arning, "after having previously made a most searching inquiry as to any leprous taint in his family, and a close examination of his own body," which examination, says Dr. Arning, "satisfied me that, as far as I am able to judge, no trace of the disease could be found in him at that time."<sup>1</sup>

Dr. Beavan Rake's valuable *Report on the Trinidad Leper Asylum for 1888* has just been kindly sent to me by the author. In it, in reference to this inoculation, he says: "When, however, we come to examine this question dispassionately, what do we find. A man living on an island infested with leprosy was inoculated three years ago with the disease, and has now developed it. But in that time he may have acquired leprosy in a dozen different ways, in air, food, water, &c., or it may have been in his family. True, the man was ascertained, as far as possible, to come of a clean family, and he has been isolated in gaol since the inoculation. Still any one who has attempted to take the

<sup>1</sup> *Appendix to Report on Leprosy*, Honolulu, 1886, p. 43.



statements of lepers will appreciate the value of family history and in a country where leprosy is rampant are we sure that it can be shut out by four walls? I repeat what I said in my last report, that an experiment of this kind, to be scientifically perfect, must be performed in a country free from leprosy, and in an individual who has never left that country, and whose immediate ancestors have always stayed at home."

Mr. C. Macnamara, then of Calcutta, discussing, in 1866, the Indian Reports on leprosy in an able article in the *Indian Medical Gazette*, stated, in addition to other arguments in favour of the view of its contagiousness: "(1) A large proportion of the civil surgeons in this Presidency believe, from personal observation, that the disease is contagious. (2) The instances quoted from this Report can only be explained by supposing the disease to be contagious."

Any opinion, however, which was favourable to contagion prior to the year 1867 went for nothing; for, in their celebrated and authoritative report of that year, the Royal College of Physicians of London made the sweeping statements, so often quoted, that:—"The all but unanimous conviction of the most experienced observers in different parts of the world is quite opposed to the belief that leprosy is contagious or communicable by proximity or contact with the diseased. The evidence derived from the experience of the attendants in leper asylums is especially conclusive on this point. The few instances that have been reported in a contrary sense either rest on imperfect observation, or they are recorded with so little attention to the necessary details as not to affect the above conclusion."

More than 250 replies to the interrogatories of the College Committee had been received from medical men and others located in the various leper centres, and a large majority of these were undoubtedly in the negative with regard to the communicability of leprosy from person to person. Some thirty-two or so, on the other hand, gave a more or less affirmative answer in reference to the question, and several qualified men actually cited cases in support of their views, *e.g.*, amongst others, Dr. Aquart, of Grenada, Dr. Manget of British Guiana, Dr. Regnaud of Mauritius, Drs. Jackson and Harris, and Messrs. Macnamara and Rose, of India. On looking over the report, it is difficult to

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see why the opinions of these gentlemen, many of whom had been for years in charge of lepers, should have been apparently considered so unreliable and worthless, in comparison with the others. The College, it seems, did not modify its view for years; but in 1887 we learn that, "The Committee are quite aware that there is much difference of opinion respecting the communicability of leprosy, and that many Colonial practitioners and inhabitants do not concur in the views expressed by the College in their Report in 1867."<sup>1</sup> There is indeed, as the Committee now admits (17th April, 1889), "increasing evidence respecting the communicability of leprosy;" and it seems to me that we cannot ignore the cases reported, and the opinions formed upon them by such qualified observers as Vandyke Carter in India, Petersen and Münch in Russia, Besnier, Vidal, Leloir, and Cornil, in France, and by many others of large experience and of high repute in all parts of the world.

In point of fact, however, any circumstances whatever—however strong they may be—which apparently lend support to the contagion theory, so long as they occur in a country in which leprosy is prevalent, are liable to be laid aside with some such "begging-the-question" remark as "that after all it only amounts to this, that a person has become a leper in a place where the disease is endemic."

In conclusion, I venture to express the opinion—after a somewhat extended study of the subject—that, with the facts at present at our disposal, it appears to be a pure assumption, unsupported by valid evidence, to say that leprosy can *only* gain a footing in the human body *per unam viam*.

Dr. Gavin Milroy, the Secretary of the Committee which scouted the idea of contagion, said, after his visit to the West Indies, that "leprosy appeared to him to be neither more nor less contagious than scrofula." We have no reason to assume that it may not be introducible in as many ways, although, perhaps, with much greater difficulty. The problem will, possibly, be fully solved when we know the whole life history of the microbe which is characteristic of the disease.

<sup>1</sup> Vide *Leprosy Committee Report*, R.C.P., 15th July, 1887.



